

WHAT IS CLAIMED IS:

1 1. A head stack assembly for a disk drive having a disk, the head stack assembly
2 comprising:

3 a body portion including a bore defining a pivot axis;

4 an actuator arm cantilevered from the body portion;

5 a head gimbal assembly supported at the actuator arm and including:

6 a load beam;

7 a gimbal coupled to the load beam, and

8 a slider coupled to the gimbal and including a transducer for reading and writing
9 on a recording surface of a disk, the slider including an air bearing surface that is configured to
10 form a shallow recessed surface and a deep recessed surface, the air bearing surface including a
11 leading air bearing region and at least one insular region configured to reduce stiction with the
12 disk, the shallow recessed surface being disposed between the air bearing surface and the deep
13 recessed surface.

1 2. The head stack assembly of Claim 1, wherein the air-bearing surface is selectively
2 etched to form at least the shallow recessed surface and the deep recessed surface.

1 3. The head stack assembly of Claim 1, wherein the at least one insular region is
2 formed by selectively etching the air bearing surface.

1 4. The head stack assembly of Claim 1, wherein the at least one insular region is
2 bounded by the shallow recessed surface.

1 5. The head stack assembly of Claim 1, wherein the at least one insular region is
2 bounded by the deep recessed surface.

1 6. The head stack assembly of Claim 1, wherein the at least one insular region 206 is
2 substantially co-planar with the leading air bearing region.

1 7. The head stack assembly of Claim 1, wherein a height differential between the at
2 least one insular region of the air bearing surface and the leading air bearing region is less than 4
3 micro inches.

1 8. The head stack assembly of Claim 1, wherein the air bearing surface is curved such
2 that the leading air bearing region and the at least one insular region collectively form a radius of
3 curvature.

1 9. The head stack assembly of Claim 1, wherein the air-bearing surface includes a
2 plurality of insular regions, each of the plurality of insular regions being shaped and dimensioned so
3 as to reduce stiction with the disk.

1 10. The head stack assembly of Claim 1, wherein the air-bearing surface further
2 includes a center pad region disposed near a trailing edge of the slider.

1 11. The head stack assembly of Claim 1, wherein the at least one insular region of the
2 air bearing surface is shaped as one of a circle and an ellipse.

1 12. The head stack assembly of Claim 1, wherein the at least one insular region has a
2 surface area that is greater than 100 microns squared and less than 2000 microns squared.

1 13. The head stack assembly of Claim 1, further including a layer of diamond like
2 carbon deposited on at least one of the insular region, the leading air-bearing region, the shallow
3 recessed surface and the deep recessed surface.

1 14. A disk drive, comprising:
2 a disk having a recording surface;
3 a head stack assembly, including:
4 a body portion including a bore defining a pivot axis;
5 an actuator arm cantilevered from the body portion, and
6 a head gimbal assembly supported at the actuator arm and including:
7 a load beam;
8 a gimbal coupled to the load beam, and
9 a slider coupled to the gimbal and including a transducer for reading
10 and writing on the recording surface, the slider including an air bearing surface that is configured
11 to form a shallow recessed surface and a deep recessed surface, the air bearing surface including a
12 leading air bearing region and at least one insular region configured to reduce stiction with the
13 disk, the shallow recessed surface being disposed between the air bearing surface and the deep
14 recessed surface.

1 15. The disk drive of Claim 14, wherein the air-bearing surface is selectively etched to
2 form at least the shallow recessed surface and the deep recessed surface.

1 16. The disk drive of Claim 14, wherein the at least one insular region is formed by
2 selectively etching the air bearing surface.

1 17. The disk drive of Claim 14, wherein the at least one insular region is bounded by
2 the shallow recessed surface.

1 18. The disk drive of Claim 14, wherein the at least one insular region is bounded by
2 the deep recessed surface.

1 19. The disk drive of Claim 14, wherein the at least one insular region is substantially
2 co-planar with the leading air bearing region.

1 20. The disk drive of Claim 14, wherein a height differential between the at least one
2 insular region of the air bearing surface and the leading air bearing region is less than 4 micro
3 inches.

1 21. The disk drive of Claim 14, wherein the air bearing surface is curved such that the
2 leading air bearing region and the at least one insular region collectively form a radius of
3 curvature.

1 22. The disk drive of Claim 14, wherein the air-bearing surface includes a plurality of
2 insular regions, each of the plurality of insular regions being shaped and dimensioned so as to
3 reduce stiction with the disk.

1 23. The disk drive of Claim 14, wherein the air-bearing surface further includes a
2 center pad region disposed near a trailing edge of the slider.

1 24. The disk drive of Claim 14, wherein the at least one insular region of the air
2 bearing surface is shaped as one of a circle and an ellipse.

1 25. The disk drive of Claim 14, wherein the at least one insular region has a surface
2 area that is greater than 100 microns squared and less than 2000 microns squared.

1 26. The disk drive of Claim 14, further including a layer of diamond like carbon
2 deposited on at least one of the insular region, the leading air-bearing region, the shallow recessed
3 surface and the deep recessed surface.

1 27. A slider for a disk drive including a disk, the disk including a recording surface, the
2 slider comprising:

3 a transducer for reading and writing on the recording surface, and

4 an air bearing surface that is configured to form a shallow recessed surface and a deep
5 recessed surface, the air bearing surface including a leading air bearing region and at least one
6 insular region configured to reduce stiction with the disk, the shallow recessed surface being
7 disposed between the air bearing surface and the deep recessed surface.

1 28. The slider of Claim 27, wherein the air bearing surface is selectively etched to form
2 at least the shallow recessed surface and the deep recessed surface.

1 29. The slider of Claim 27, wherein the at least one insular region is formed by
2 selectively etching the air bearing surface

1 30. The slider of Claim 27, wherein the at least one insular region is bounded by the
2 shallow recessed surface.

1 31. The slider of Claim 27, wherein the at least one insular region is bounded by the
2 deep recessed surface.

1 32. The slider of Claim 27, wherein the at least one insular region 206 is substantially
2 co-planar with the leading air bearing region.

1 33. The slider of Claim 27, wherein a height differential between the at least one
2 insular region of the air bearing surface and the leading air bearing region is less than 4 micro
3 inches.

1 34. The slider of Claim 27, wherein the air bearing surface is curved such that the
2 leading air bearing region and the at least one insular region collectively form a radius of
3 curvature

1 35. The slider of Claim 27, wherein the air-bearing surface includes a plurality of
2 insular regions, each of the plurality of insular regions being shaped and dimensioned so as to
3 reduce stiction with the disk.

1 36. The slider of Claim 27, wherein the air-bearing surface further includes a center
2 pad region disposed near the trailing edge of the slider.

1 37. The slider of Claim 27, wherein the at least one insular region of the air bearing
2 surface is shaped as one of a circle and an ellipse.

1 38. The slider of Claim 27, wherein the at least one insular region has a surface area
2 that is greater than 100 microns squared and less than 2000 microns squared.

1 39. The slider of Claim 27, further including a layer of diamond like carbon deposited
2 on at least one of the insular region, the leading air-bearing region, the shallow recessed surface
3 and the deep recessed surface.

DOCKET # 2007-2007-0000